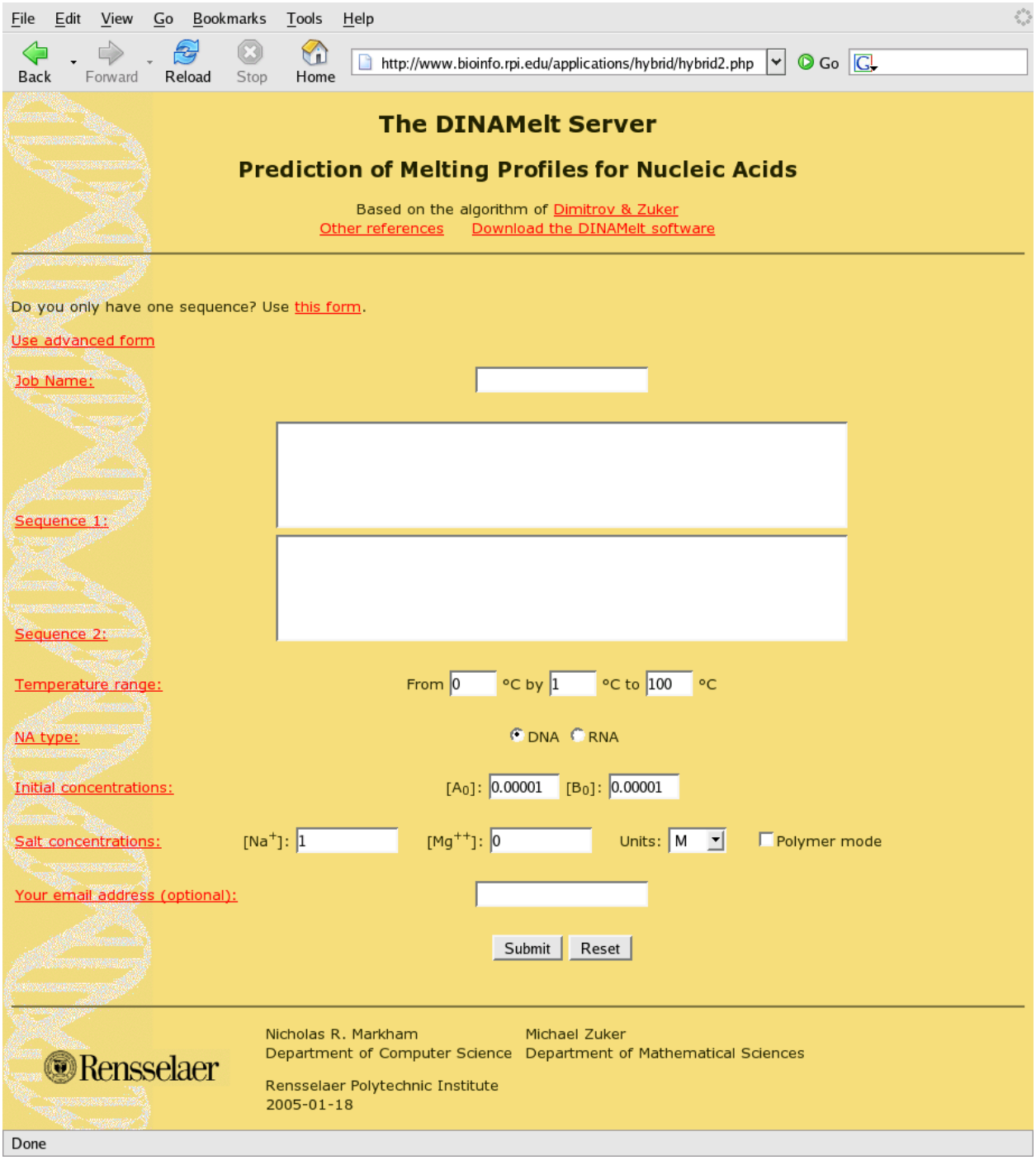
# 1 Server Appearance

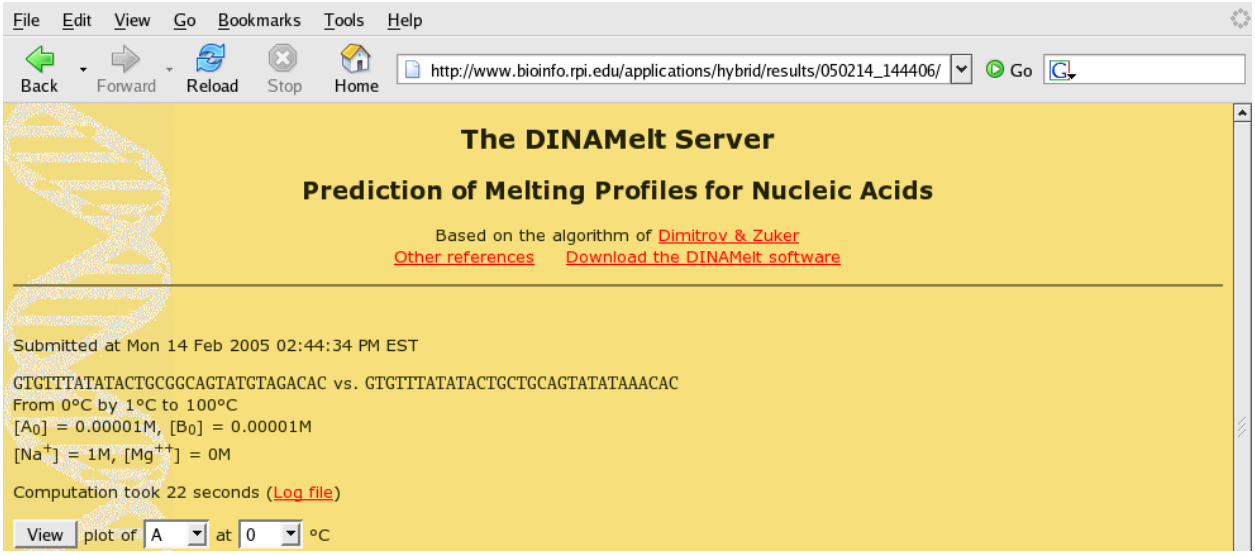
## 1.1 Input Form

The default input form (for two sequence, with no advanced parameters) appears below as it did on the server on April 12, 2005:



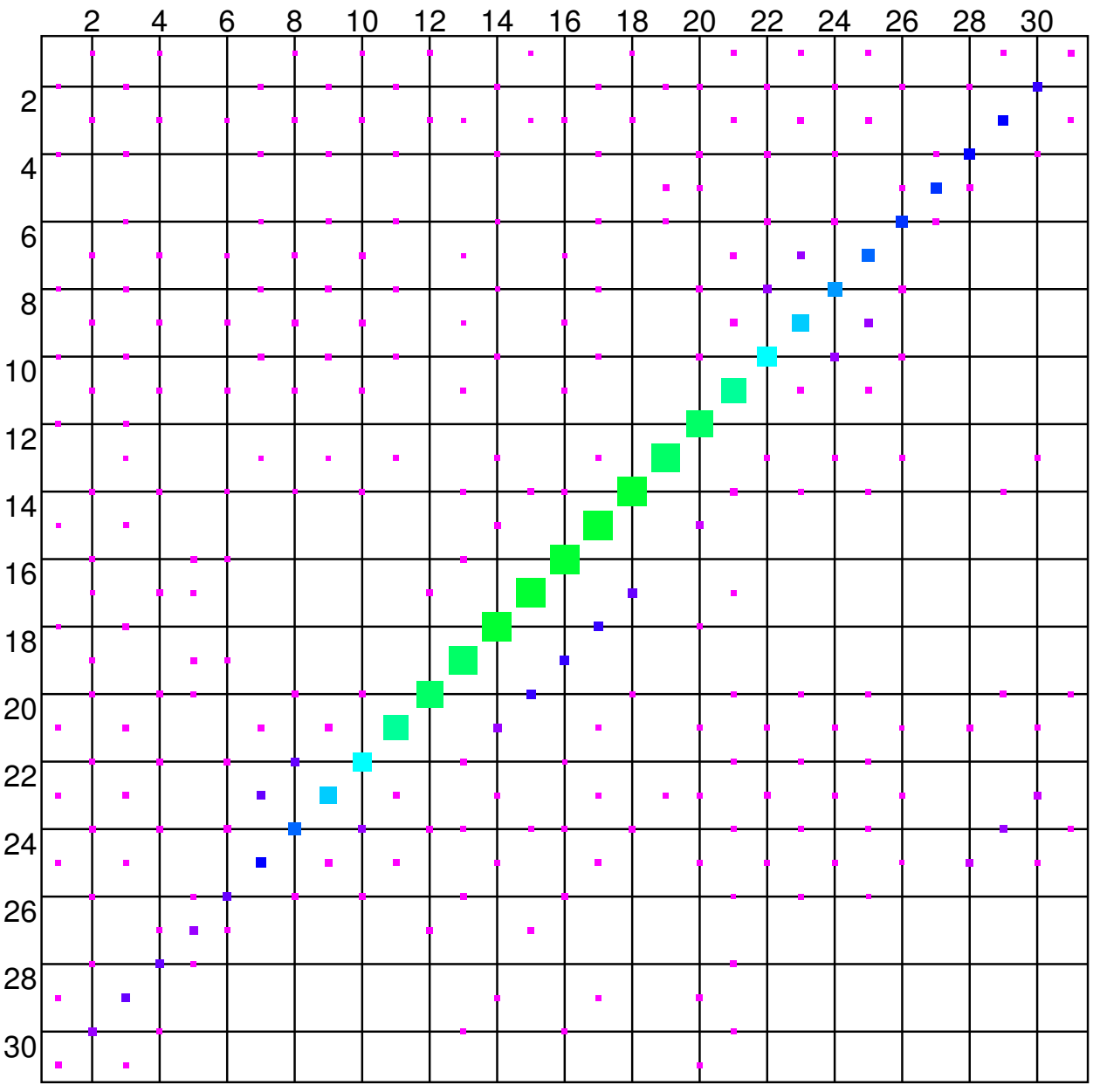
## 1.2 Output Page

Part of a typical output page, also from April 12, 2005, appears below:




## 1.3 Probability Plot

An example probability plot appears below. The probability of each basepair, conditional on the formation of at least one basepair, is indicated by the size and color of the corresponding dot.



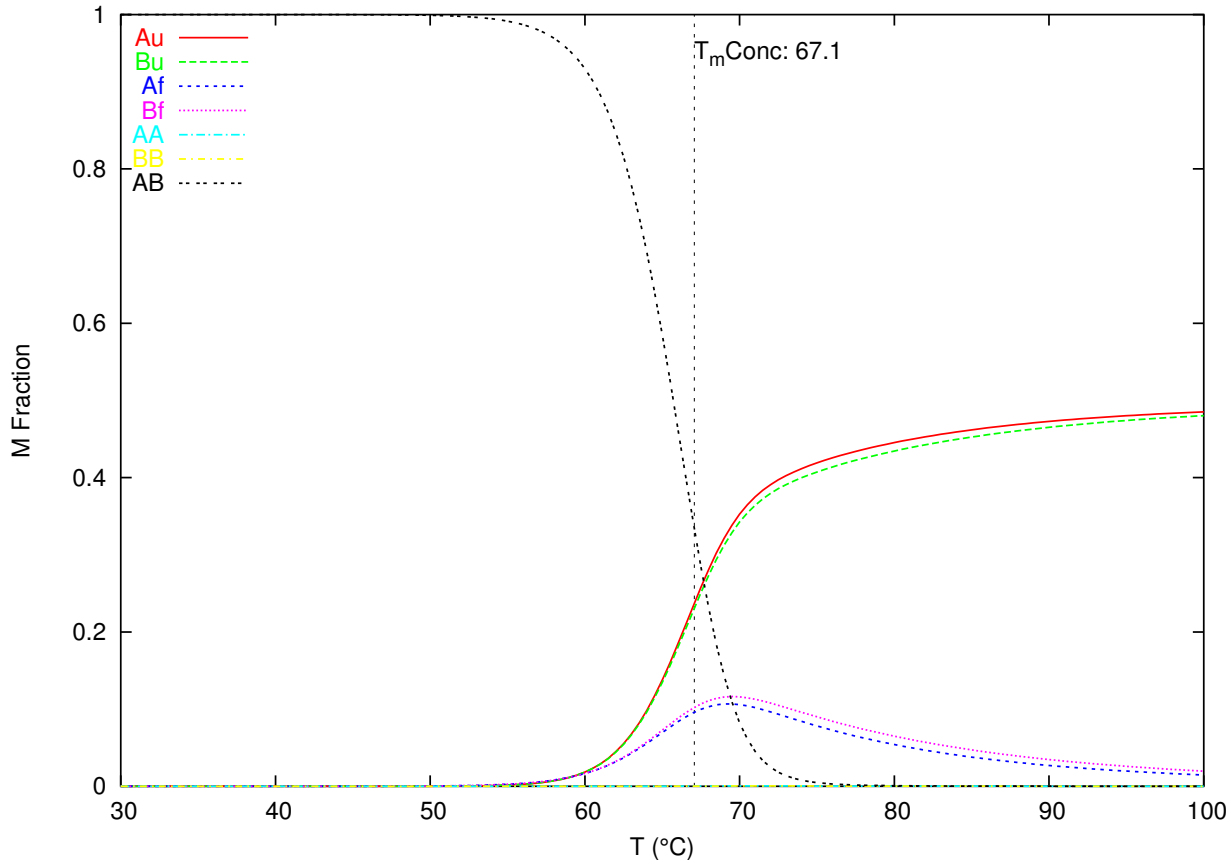

# 2 DINAMelt Server Results for Real Sequences

## 2.1 Case I: Simulating Differential Scanning Calorimetry

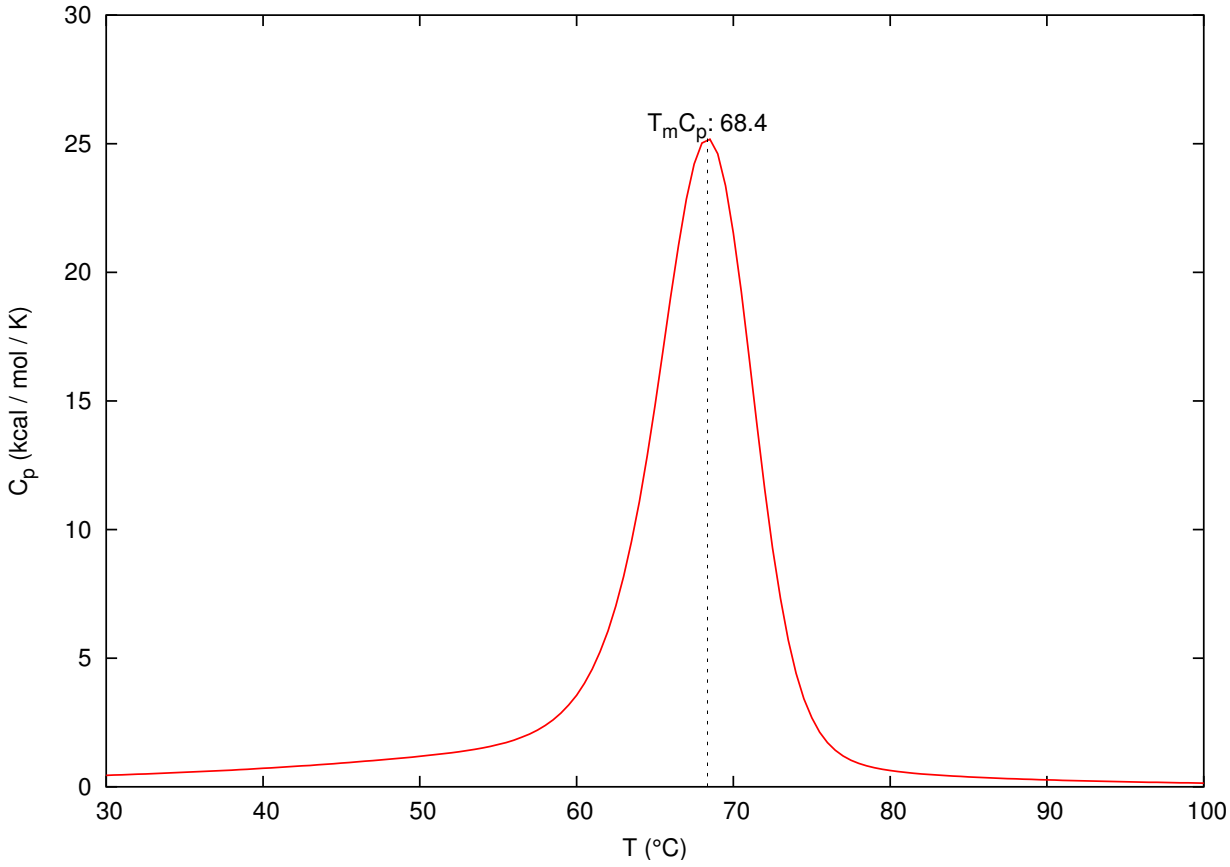
The sequence $5' - \text{CTCAACTTGCGGTAAATAAATCGCTTAATC} - 3'$ and its reverse complement $5' - \text{GATTAAGCGATTTATTTACCGCAAGTTGAG} - 3'$ were processed from $T_{\text{min}} = 30^{\circ}$ C to $T_{\text{max}} = 100^{\circ}$ C with increment $T_{\text{inc}} = 0.5^{\circ}$ C. Strand concentration was 90 $\mu$M for each strand

and salt conditions were $[Na^+] = 68.88$ mM and $[Mg^{++}] = 0$.

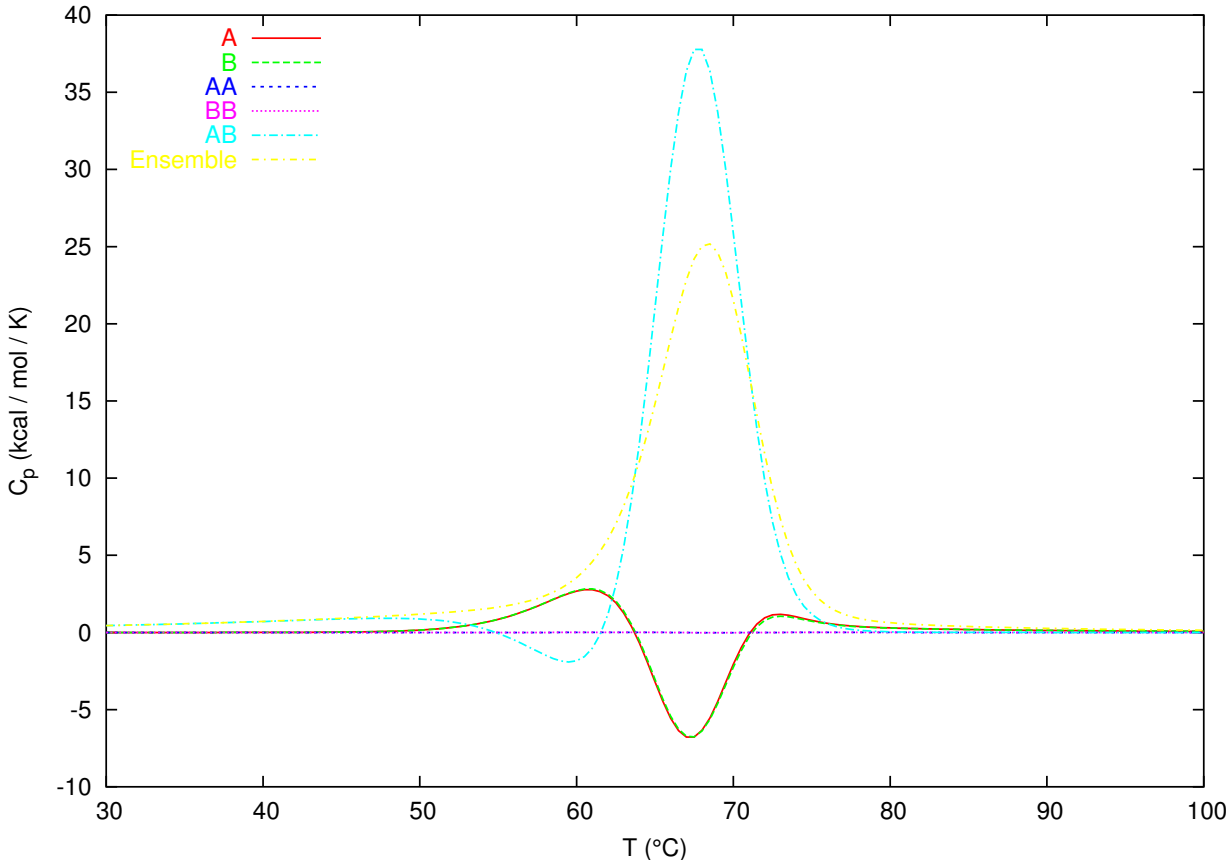
The concentration plot produced by the server:



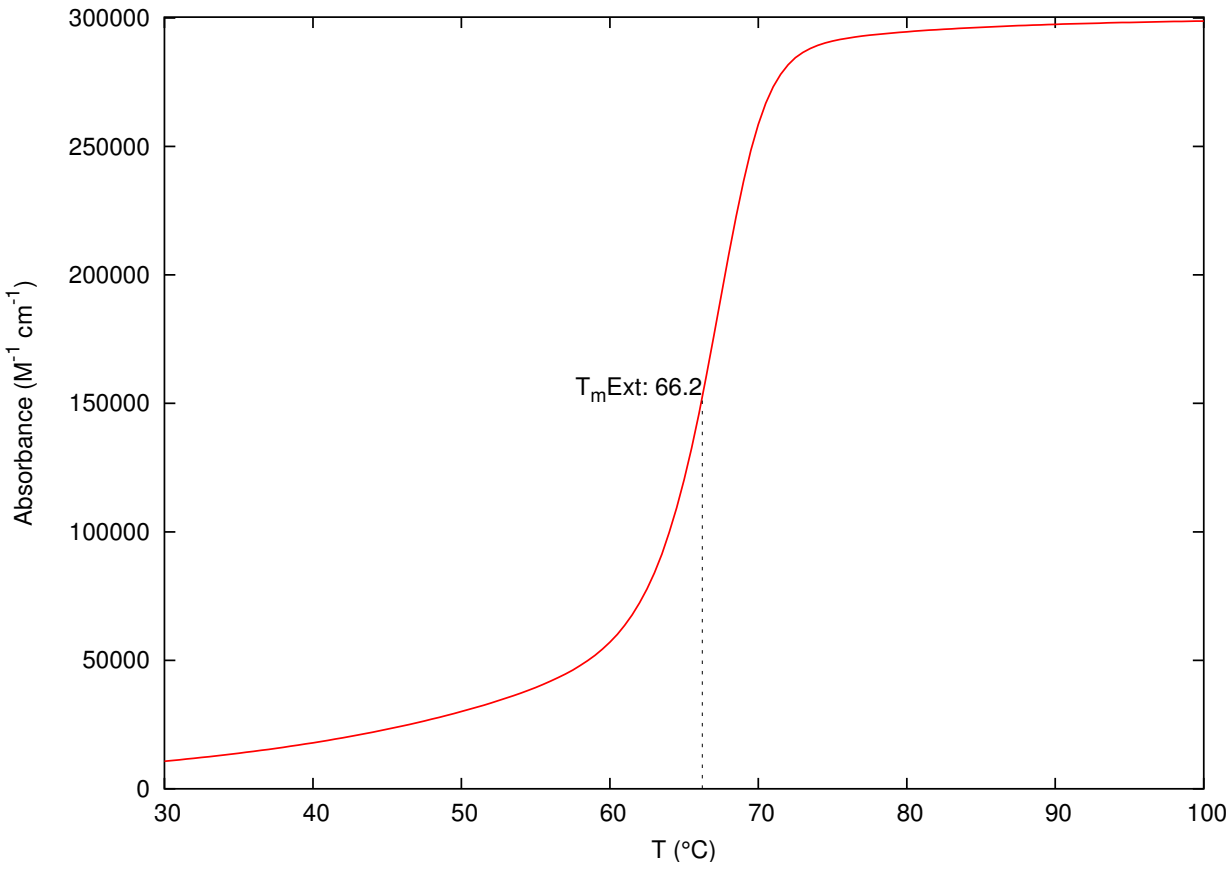

The heat capacity plot produced by the server:



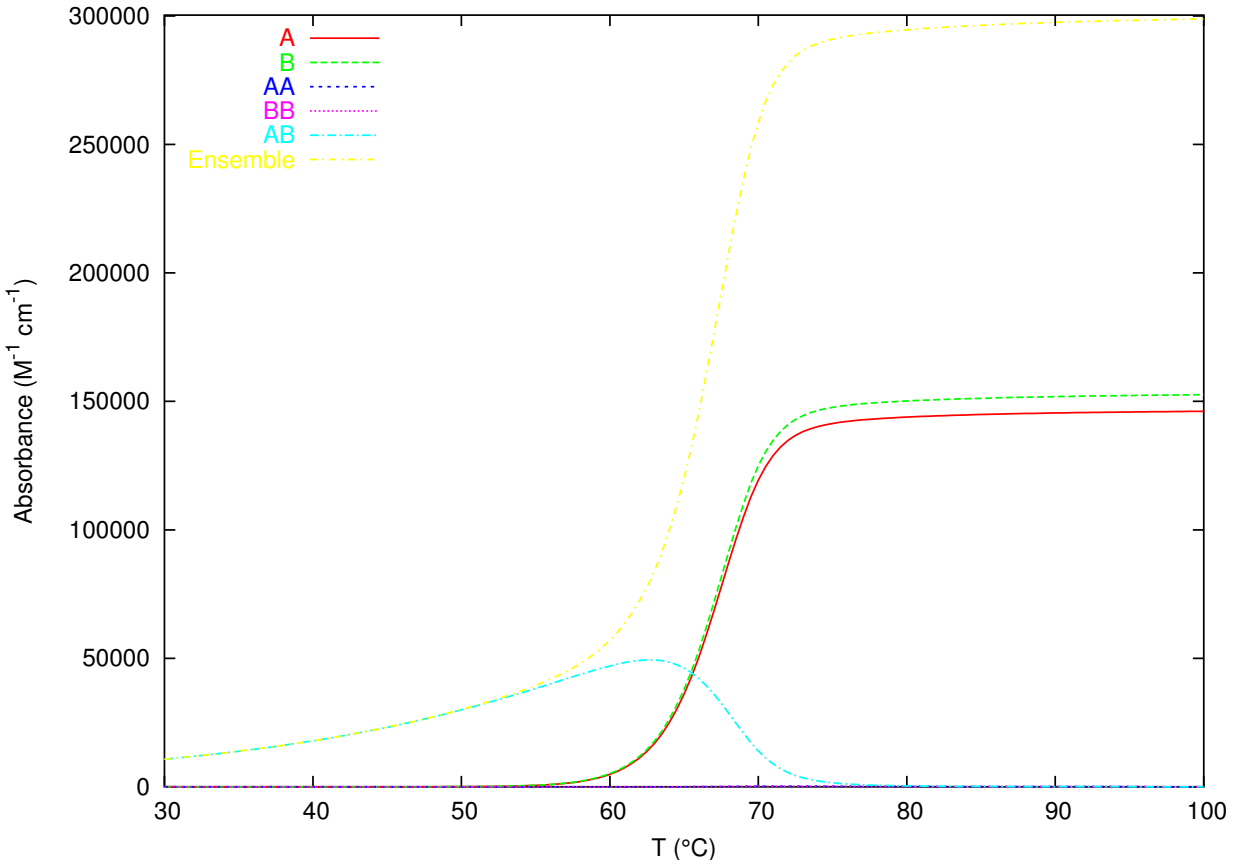

The detailed heat capacity plot produced by the server:



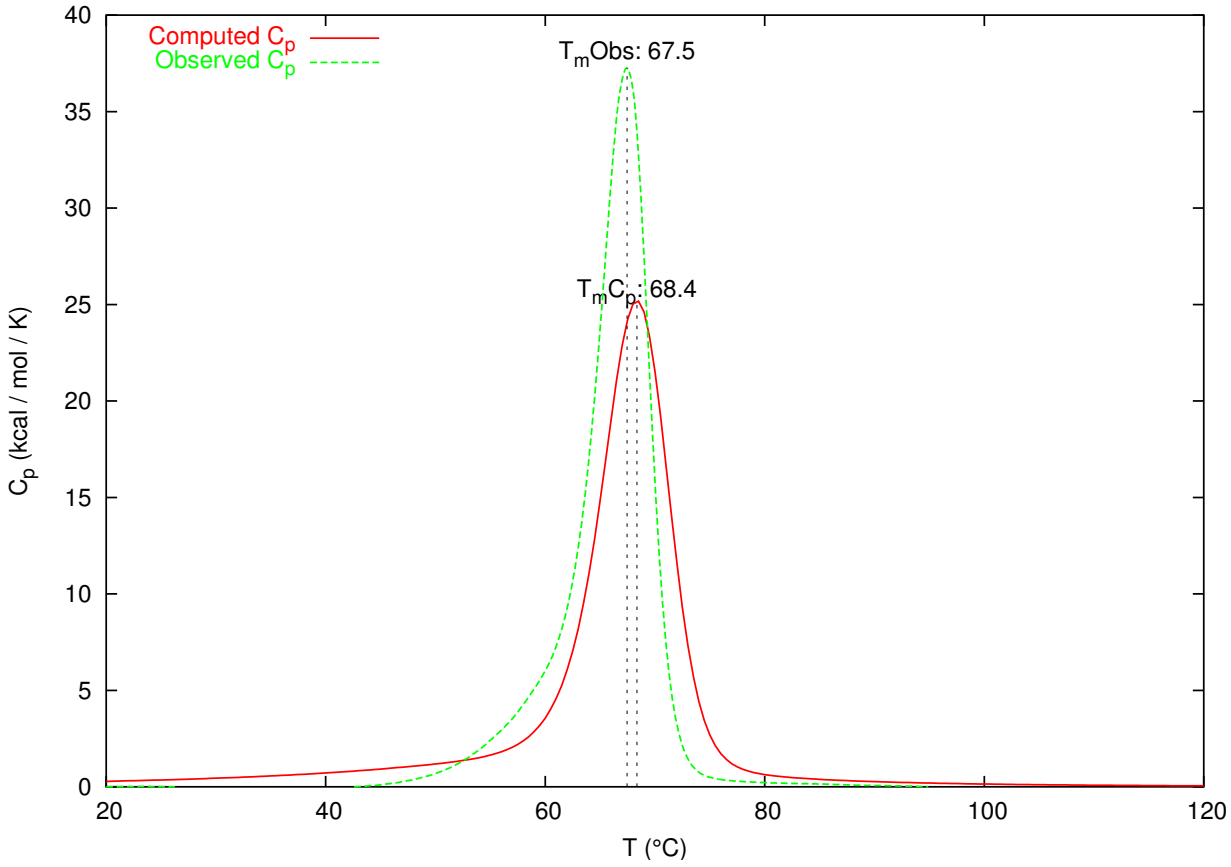

The UV absorbance plot produced by the server:




The detailed UV absorbance plot produced by the server:



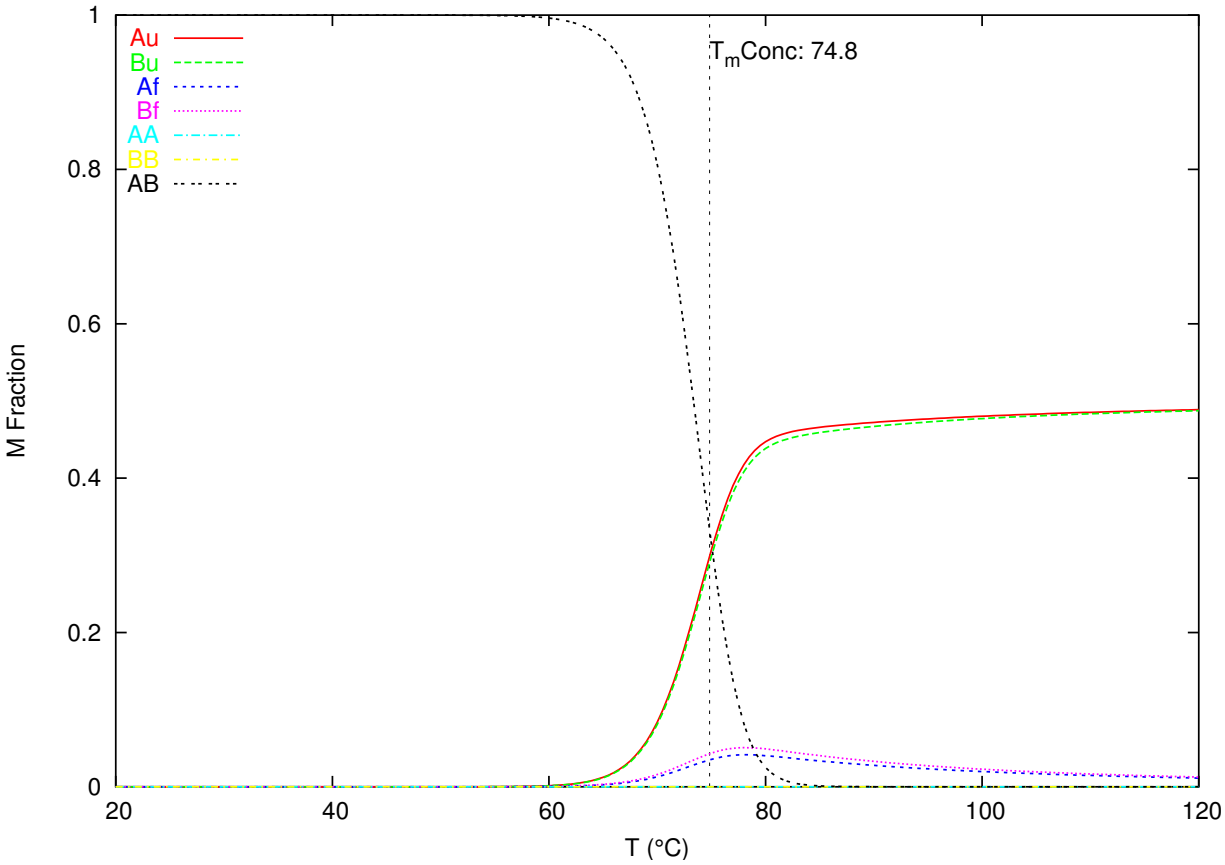

This melt was also measured uing differential scanning calorimetry by Integrated DNA Technologies (IDT) in Coralville, Iowa. Their observed heat capacity curve is plotted along with our computed data below:



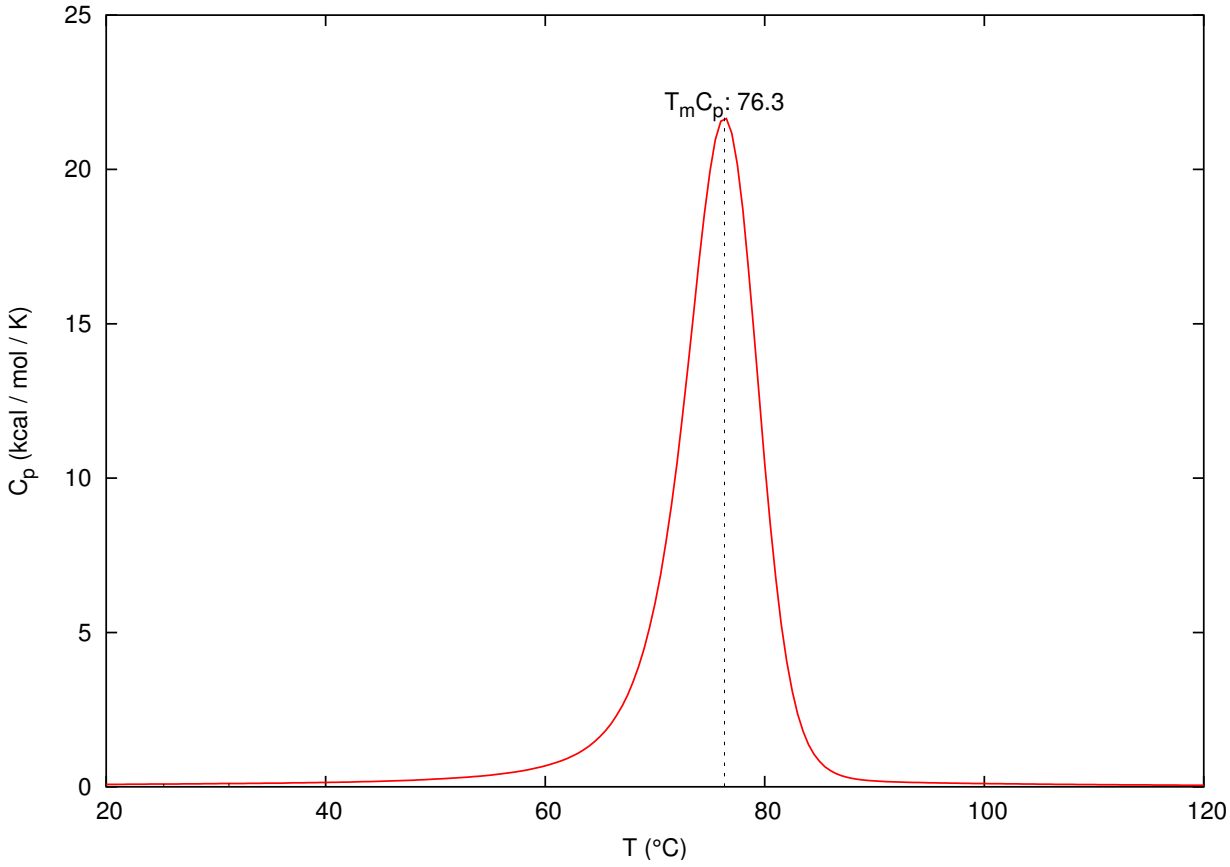

## 2.2 Case II: Simulating UV Absorbance

The sequence $5' - \text{TAGTATATCGCAGCATCATACAGGC} - 3'$ and its reverse complement $5' - \text{GCCTGTATGATGCTGCGATATACTA} - 3'$ were processed from $T_{\text{min}} = 30^\circ$ C to $T_{\text{max}} = 100^\circ$ C with increment $T_{\text{inc}} = 0.5^\circ$ C. Strand concentration was 1.2 $\mu$M for each strand and salt conditions were $[\text{Na}^+] = 1$ M and $[\text{Mg}^{++}] = 0$.

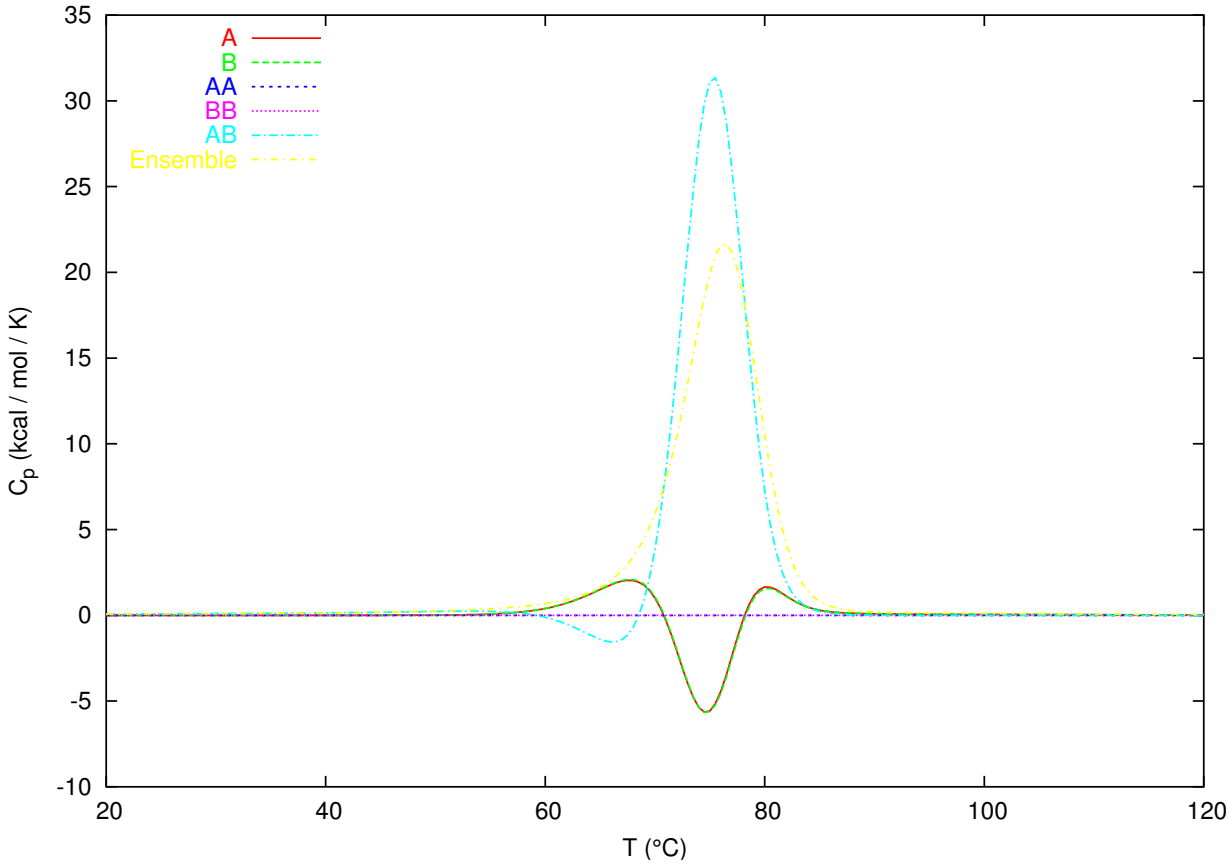
The concentration plot produced by the server:



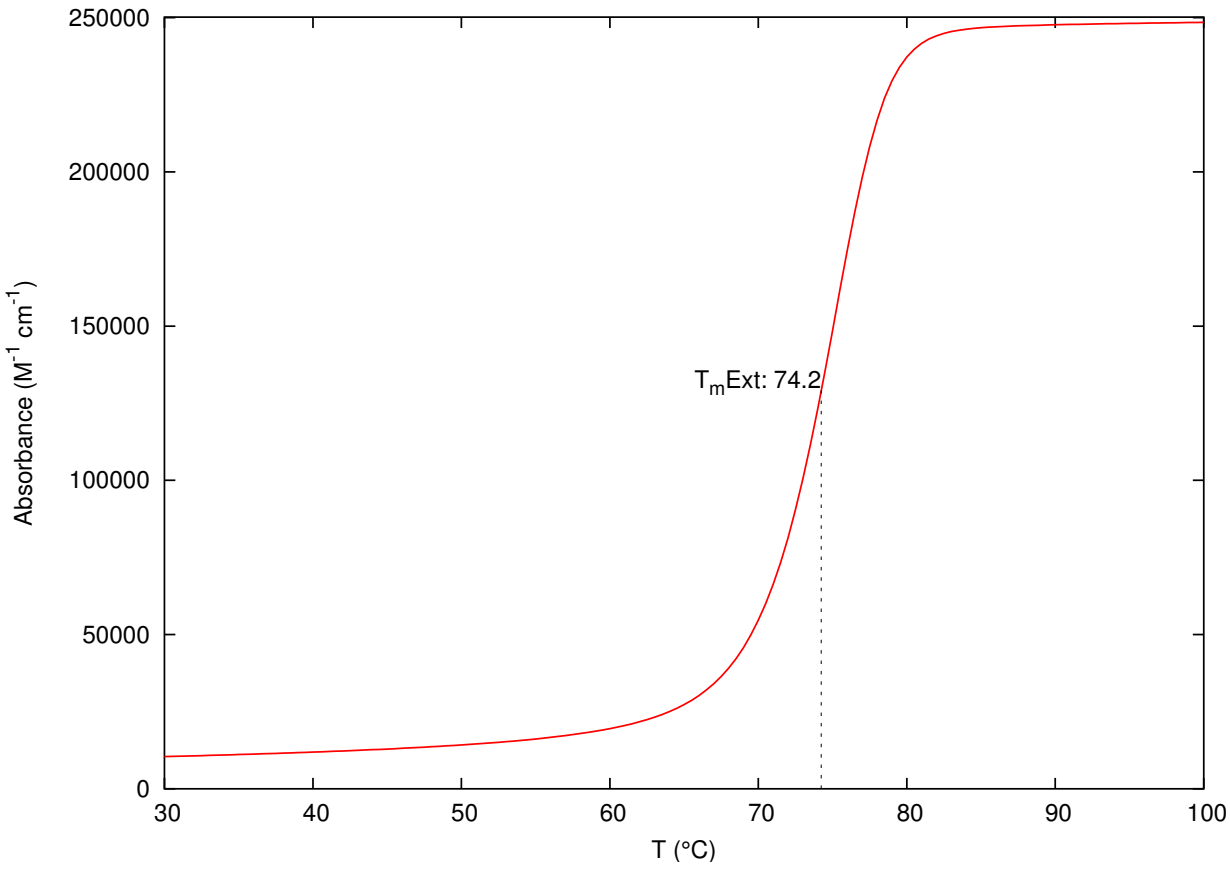

The heat capacity plot produced by the server:



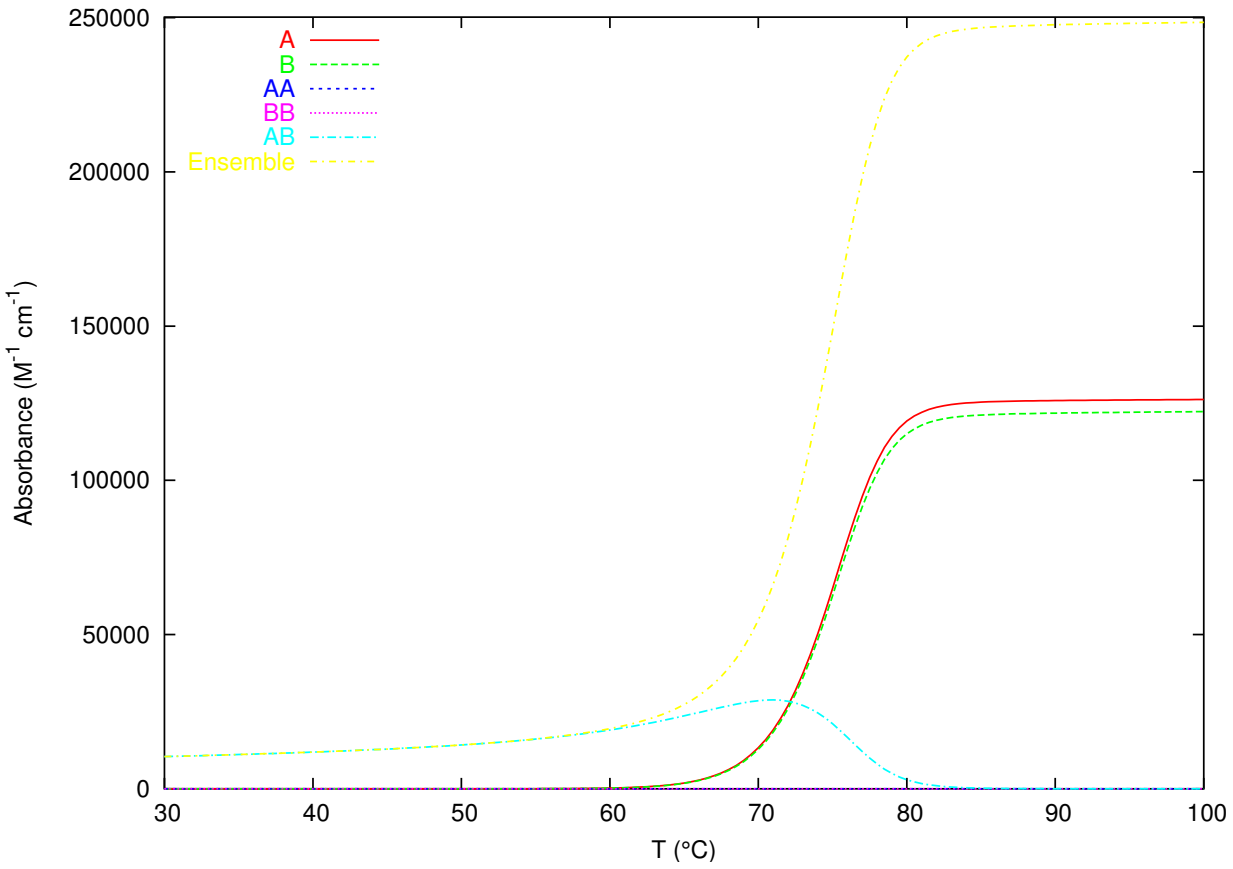

The detailed heat capacity plot produced by the server:



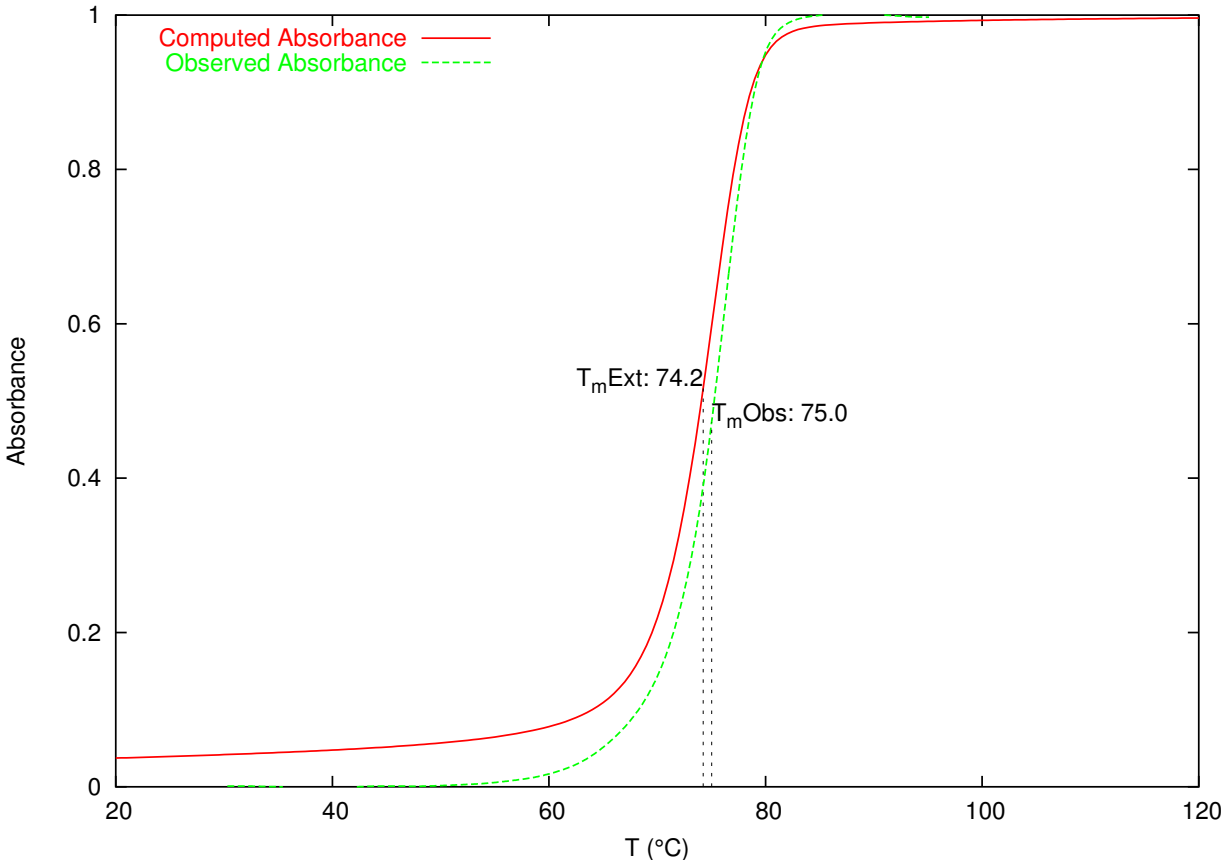

The UV absorbance plot produced by the server:




The detailed UV absorbance plot produced by the server:




This melt was also measured uing UV absorbance by IDT. Their observed absorbance curve is plotted along with our computed data below:


Computed Absorbance
Observed Absorbance
$T_m$Ext: 74.2
$T_m$Obs: 75.0
Absorbance
T (°C)
0
0.2
0.4
0.6
0.8
1
20
40
60
80
100
120